

REMARKS

Objection to the Drawings

In paragraph 3 of the pending Office Action mailed July 30, 2004, the Examiner objected to Figure 1 for failing to comply with 37 CFR 1.84(p)(5) because reference numeral 61 is mentioned in the description of Figure 1 but it is not included within the figure. Applicant has amended the specification to indicate that the phase modulator referenced by numeral 61 is shown in Figures 6, 7, and 8. See page 6, lines 18-19.

Thus, Applicant submits that the drawings are in compliance with 37 CFR 1.84(p)(5) and requests that the objection be withdrawn.

Objection to the Specification

In Paragraphs 4-6 of the pending Office Action, the Examiner objected to the abstract and specific passages within the specification. Applicant has amended the abstract and specification incorporating the Examiner's suggestions. Thus, applicant requests that the objections be withdrawn.

Claim Objections

In paragraph 7 of the pending Office Action, the Examiner objected to Claim 8 identifying a typographical error. Applicant has amended Claim 8 to correct this error. Thus, applicant requests that the objection be withdrawn.

Claim Rejections Under 35 U.S.C. § 102

In paragraph 9 of the pending Office Action, the Examiner rejected Claims 1, 5, 11, and 13 under 35 U.S.C. § 102 as being anticipated by U.S. Patent Application Publication US 2002/005746A1 to Tanaka ("Tanaka"). Applicant respectfully submits that Claims 1, 5, 11, and 13 are patentably distinct over Tanaka.

Claim 1 is an independent claim. All other rejected claims depend either directly or indirectly from Claim 1. Claim 1 has been amended to include the limitation reciting that a mirror separates out a first portion of parallel beams. The

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amendment of this claim also recites that a spatial light modular is disposed in the optical path of a second portion of the parallel beams. These limitations are fully supported, see, for example, page 7, lines 11-15, which describes a first mirror which intercepts parallel beams to enter a beam steering system and describes that the remaining portion of the parallel beams pass through the spatial light modulator.

Claim 1 includes the limitations of:

...
a mirror being disposed in the optical path of parallel beams for separating out a first portion of the parallel beams; and
a spatial light modulator (40) comprising light grating components disposed in the optical path of a second portion of the parallel beams for holographic data input.
...

In rejecting Claim 1, the Examiner cited to Figure 1 in Tanaka. Tanaka describes a holographic recording/reproducing apparatus. In Figure 1 of Tanaka light emitted from "a light-beam source 11 is split into a signal light beam 12a and a recording reference light beam 12b by the beam splitter 13." (Tanka Paragraph 0006). Thus, in Tanaka all of the light from the light beam source impinges onto the beam splitter. Some of the light passes through the beam splitter and becomes the signal light beam, and some of the light reflects off of the beam splitter and becomes the reference light beam.

Nowhere does Tanaka describe the limitation recited in Claim 1 of "a mirror being disposed in the optical path of parallel beams for separating out a first portion of the parallel beams." In contrast to a mirror that reflects all of the light that impinges onto it, Tanaka describes that light impinges onto the beam splitter and is split such that some light passes through the beam splitter and becomes the signal light beam and some of the light is reflected and becomes the reference light-beam.

Replacing Tanaka's beam splitter with a mirror would make the holographic recording/reproducing system inoperable because the mirror would reflect all of the light impinging on it, so there would be no light passing through the mirror to become the signal beam.

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Thus, applicant respectfully submits that independent Claim 1 is patentably distinct over Tanaka. In addition, the dependent claims, Claims 2-15 that depend directly or indirectly from Claim 1 are also patentably distinct over Tanaka.

Claim Rejections Under 35 U.S.C. § 103

In paragraph 11 the Examiner rejected Claim 3 over Tanaka in View of U.S. Patent 5,684,611 to Rakuljic ("Rakuljic"). In paragraph 12, the Examiner rejected Claims 2 and 4 over Tanaka in View of Rakuljic and further in view of U.S. Patent Application Publication US 2003/0007129A1 to Ashizaki ("Ashizaki"). In paragraph 13, the Examiner rejected Claim 6 over Tanaka in view of U.S. Patent 3,694,657 to Brooks ("Brooks"). In paragraph 14, the Examiner rejected Claim 14 over Tanaka. In paragraph 15, the Examiner rejected Claim 8 over Tanaka in view of U.S. Patent 3,615,123 to Wuerker ("Wuerker"). In paragraph 16, the Examiner rejected Claims 9-10 over Tanaka in view of Horimai. In paragraph 17, the Examiner rejected Claim 12 over Tanaka in view of U.S. Patent 5,481,523 to Dewald ("Dewald"). In Paragraph 18, the Examiner rejected Claims 14-15 over Tanaka.

None of the additional references make up for the deficiencies of Tanaka. For example, Rakuljic, Ashizaki, Wuerker, Horimai, and Dewald all describe a holographic system similar to Tanaka's where all of the light from the light beam source impinges onto the beam splitter. Some of the light passes through the beam splitter and becomes the signal light beam, and some of the light reflects off of the beam splitter and becomes the reference light beam. Brooks describes a system that uses a prism to separate out a portion of the laser light beam to generate a reference beam. None of these references, neither individually nor in combination, include all of the limitations of Claim 1. For example, none of these references describe a mirror being disposed in the optical path of parallel beams for separating out a first portion of the parallel beams; and a spatial light modulator comprising light grating components disposed in the optical path of a second portion of the parallel beams for holographic data input.

Claim 16

In this amendment, Applicant has added Claim 16. Claim 16 is similar to Claim 1, but does not include a mirror and instead includes a beam splitter that

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intercepts a portion of the parallel beams and a spatial light modulator that receives a remaining portion of the parallel beams wherein none of the remaining portion was incident upon the beam splitter. Claim 16 is fully supported, see for example, page 7, line 11 and page 9, lines 3-5.

Claim 16 includes the limitations of:

...
a beam splitter that intercepts a portion of the parallel beams and redirects the intercepted portion; and
a spatial light modulator comprising light grating components disposed in the optical path to receive a remaining portion of the parallel beams for holographic data input, wherein none of the remaining portion was incident upon the beam splitter.
...

None of the references cited by the Examiner include all of the limitations of Claim 16. As discussed above, Tanaka describes a system where all of the light from the light beam source impinges onto the beam splitter and some of the light passes through the beam splitter and becomes the signal light beam, and some of the light reflects off of the beam splitter and becomes the reference light beam. In addition, Rakuljic, Ashizaki, Wuerker, Horimai, and Dewald all describe a holographic system similar to Tanaka's where all of the light from the light beam source impinges onto the beam splitter and some of the light passes through the beam splitter and becomes the signal light beam, and some of the light reflects off of the beam splitter and becomes the reference light beam. Also, Brooks describes a system that uses a prism to separate out a portion of the laser light beam to generate a reference beam. None of these reference, individually or in combination, include the limitation of a beam splitter that intercepts a portion of the parallel beams and redirects the intercepted portion, and a spatial light modulator that receives a remaining portion of the parallel light beams, wherein none of the remaining portion was incident upon the beam splitter.


Thus, applicant respectfully submits that independent Claim 16 is patentably distinct over all of the references cited by the Examiner, either individually or in combination.

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Conclusion

Applicant respectfully submits that all the now-pending claims in the application, Claims 1-16, are patentably distinct and over all of the references cited by the Examiner, either individually or in combination, and are in condition for allowance. Reconsideration and further examination of the application are requested. A Notice of Allowance is solicited.

Respectfully submitted,
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